

REMARKS

Claims 27 and 36 have been amended. Claim 33 has been cancelled. New claims 43 and 44 have been added. Accordingly, claims 27-32 and 34-44 stand for consideration in this application.

Claim 27 has been amended to further recite that the topological device of the liquid composition application system comprises a single global positioning system (GPS) for acquiring topological information of a rail system based upon sampling of data from the single GPS in real-time, the topological information comprising, speed, heading, altitude, change in speed, change in direction, change in elevation or orientation of a rail car in the rail system, or a combination thereof. Support for this amendment is provided in at least page 13, lines 14-20; page 23, lines 16-23; and page 25, lines 1-16 of the description as originally filed.

Depended claim 36 has been amended to conform with the language of amended claim 27 from which it depends.

New claim 43 provides the additional feature that the processing device is configured to execute operational instructions received from the site separate from a train consist in the rail system. New claim 44 provides the additional feature that the operational instructions direct the processing device to control the application of the liquid composition. Support for new claims 43 and 44 is provided in at least page 28 line 14 to page 29, line 15.

Claims 27 and 33-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar (USP 5,477,941), in view of Clyne K.M. (WO 0118558 A1) and Gray (USP 2002/0072833 A1). Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar, in view of Clyne K.M., Gray, and Kast (USP 6,578,669 B2).

It is submitted that the outstanding rejections are now moot as applied to the presently amended claims. Specifically, it is submitted that none of the cited prior art, whether alone or in combination, teach or suggest a liquid composition application system or method of using a liquid application system, wherein control of the application of liquid composition is based upon topological information of a rail system acquired from a single global position system (GPS), the topological information based upon a sampling of data from the single GPS in real-time, comprising, speed, heading, altitude, change in speed, change in direction, change in elevation or orientation of a rail car in the rail system, or a combination thereof.

Specifically, amended claim

27 states in part:

A liquid composition application system, comprising:

i. a topological device comprising a single global position system (GPS) for acquiring topological information of a rail system based upon sampling of data from the single GPS in real-time, the topological information comprising, speed, heading, altitude, change in speed, change in direction, change in elevation or orientation of a rail car in the rail system, or a combination thereof;

The liquid composition application system (and method) recited in the presently amended claims processes real-time GPS data to determine kinematic and/or location parameters (i.e. topological information) and controls the application of a liquid composition based upon the value of these parameters. One exemplary advantage of this approach is that prior knowledge of

the track (e.g. based on a track database) is not required to effectively administer the liquid composition as the train passes along the track. It is submitted that none of the cited prior art teach or suggest a liquid composition system providing at least this feature.

Kumar teaches a system for applying a lubricant to a track, however, as acknowledged by the Examiner, Kumar fails to teach the use of a GPS receiver for acquiring topological information or the control of the application of the lubricant based upon real-time GPS data.

Clyne K.M. teaches a system for applying a lubricant to a track wherein data obtained from two GPS receivers is utilized to lookup the properties of the track against a predetermined track database, and based upon the properties of the track contained in the track database the system controls the application of the lubricant to the track (see Clyne K.M., page 6, line 24 to page 7, line 8; and page 9, lines, 5-8). Thus, in contrast to the system (and method) recited in the claims as presently amended, Clyne K.M. requires prior knowledge of the track (i.e. using a track database) to effectively administer the liquid composition as the train passes along the track. Accordingly, Clyne K.M. clearly fails to disclose controlling the application of a liquid composition based upon topological information of a rail system acquired from a single GPS in real-time as recited in the claims as presently amended. Further, Clyne K.M. teaches away from such an approach by requiring that the control of the application of lubricant is based upon the properties of the track obtained from a predetermined track database.

Gray teaches a distribution power system wherein data obtained from a GPS receivers is utilized to lookup the properties of the track against a predetermined track database, and based upon the properties of the track contained in the track database the system distributes power

amongst the locomotives of a train (see Gray; page 2, paragraphs 21, 22 and 24). Thus, in contrast to the system (and method) recited in the claims as presently amended, Gray requires prior knowledge of the track (i.e. using a track database) to take control actions. Further, Gray does not teach or suggest the application of a liquid composition to the track; rather, Gray is directed at regulating power distribution amongst locomotives in a train. Accordingly, Gray clearly fails to disclose the control of the application of a liquid composition based upon topological information of a rail system acquired from a single GPS in real-time as recited in the claims as presently amended. Further, Gray teaches away from such an approach by requiring that the control actions are based upon the properties of the track obtained from a predetermined track database.

Kast teaches a lubrication system mounted on a railroad locomotive for applying a lubricant to a rail. There is no teaching in Kast of a GPS system for acquiring topological information of a rail system in real time, nor controlling the application of lubricant based on such information. Accordingly, Gray clearly fails to disclose the control of the application of a liquid composition based upon topological information of a rail system acquired from a single GPS in real-time as recited in the claims as presently amended.

Therefore, it is submitted that the combination of Kumar, Clyne K.M., Gray and Kast would not result in the system and methods recited in the claims as presently amended. Accordingly, claims 27-32 and 34-44 are both novel and inventive over Kumar, Clyne K.M., Gray and Kast. Withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

CONCLUSION

In view of the foregoing amendments and accompanying remarks, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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